

Indications for Surgical Treatment in Genito-Urinary Tuberculosis

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SUMMARY

Proper methods of surgical treatment effect arrest of localized tuberculosis in 90 per cent of cases, but as early and latent renal tuberculosis can be controlled in 50 per cent of cases by conservative treatment, careful deliberation as to choice of method of treatment is necessary in each case. In some circumstances, operation is definitely contraindicated. These observations apply also to tuberculosis elsewhere in the urogenital tract. When surgical treatment is carried out, careful preoperative and postoperative medical care is an important factor.

The primary site of urogenital tuberculosis is the kidney, from which organ the infection spreads to the ureter, the bladder and the prostate gland. The prostate gland is the initial site of invasion in the genital tract, extension to other genital structures following. This sequence of infection is an important consideration in determining the management of urogenital tuberculosis.

SURGICAL therapy for tuberculosis is a medical as well as a surgical problem, the surgeon being one member of the therapeutic team. Tuberculous lesions other than pulmonary are but manifestations of the constitutional disease; the primary lesion is always in the chest. The infection spreads from the lungs through the large lymphatic duct into the subclavian vein, into the general circulation, and thence to various organs and tissues. At times, when drainage becomes obstructed or when medical treatment is ineffective, an infected organ must be excised.

Once tuberculosis has spread from the chest, it is doubtful that it ever is completely eliminated, but it may be controlled; surgical treatment does not cure tuberculosis, but rather aids in obtaining the optimal clinical result. Frequently, surgical treatment can benefit tuberculous patients, provided their specific problems are considered.

General and local resistance against *Mycobacterium tuberculosis* can develop in the human organism, and an understanding of the mechanism by

which it develops is essential to proper management, whether medical or surgical. The success of surgical treatment depends on careful selection of patients, proper timing of the operation, and long postoperative care. The important lesions—those that may cause death—must be attacked first. If there are active lesions in the lungs or elsewhere, operation should be postponed until they are arrested. Postoperative care must be continued until any residual infection or any lesions activated by the surgical manipulation become quiescent.

Renal Tuberculosis

In more than 50 per cent of cases of early and latent renal tuberculosis, arrest of the local lesion can be brought about by conservative treatment. Proper methods of surgical treatment effect ultimate arrest of localized tuberculosis in 90 per cent of cases. Patients recover more quickly if treated medically both before and after operation.

Nondestructive renal tuberculosis, even if unilateral, should not be treated by surgical intervention. Constitutional treatment should be instituted and the local lesion should be carefully observed in order that if a destructive process develops, it will be known immediately.

Unilateral destructive renal tuberculosis is an indication for nephrectomy provided (1) the other kidney is functionally sound and is free of tuberculous infection, (2) active local or general tuberculosis is not present, and (3) the general condition of the patient is such as to enable him to withstand an operative procedure of this magnitude.

In the case of a small destructive lesion of the kidney, the choice of surgical extirpation or watchful waiting frequently is difficult. Such lesions may involve only 1 per cent to 5 per cent of the tissue in an otherwise normal kidney. To sacrifice the entire organ because of a small destructive lesion, especially in view of the high incidence of bilateral renal tuberculosis, seems unjustifiable. If a patient is treated for constitutional tuberculosis, specific therapy for small destructive lesions may be postponed almost indefinitely. Treatment of the constitutional disease must be intensive and the progress of the local lesions must be noted regularly.

Treatment for bilateral renal involvement also requires deliberation. If there is complete renal destruction on one side, if the other kidney has a non-destructive lesion and good function, and if the patient's resistance against tuberculous manifestations elsewhere in the body is satisfactory, then nephrectomy is justifiable, provided surgical treatment is preceded and followed by general hygienic

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measures. If, on the other hand, the lesions are small on both sides, or small on one side and of moderate size on the other, surgical treatment should not be undertaken. The duration of life for patients with bilateral renal tuberculosis is determined to a large extent by the amount of residual well-functioning renal tissue; frequently it is substantial, so that two tuberculous kidneys provide greater reserve and a better prognosis than only one kidney. Constitutional treatment, heliotherapy, and the careful co-operation of the patient may prolong life for several years.

If the lesions in one kidney are progressive and the other kidney is functionally sound, nephrectomy should be done. However, unless there is an accompanying acute ureteral obstruction or hemorrhage, the patient should be treated conservatively until the exact character and extent of the local lesion are determined.

Before nephrectomy is considered^{1,2,3} the following criteria should be established: evidence of considerable destruction and cavitation of the kidney; the presence of tubercle bacilli in the urine on repeated examination at intervals of considerable duration; the absence of tubercle bacilli in the urine from the opposite kidney on repeated examination; the failure of medical management of the type now employed in pulmonary tuberculosis—that is, proper sanitarium regimen and the administration of chemotherapeutic and antibiotic agents in suitable dosage.

Tuberculosis of the Ureter

Tuberculosis of the ureter always is secondary to renal tuberculosis. Indications for surgical treatment are similar to those for the kidney.

Tuberculosis of the Bladder

Surgical treatment for vesical tuberculosis consists in light fulguration of nonhealing vesical lesions after removal of the original focus in the kidney, and sometimes in diversion of the urinary stream without removal of the bladder. Antibiotic and chemotherapeutic agents frequently will control the symptoms, or the lesions themselves, so that resort to surgical procedure or even cautery is now less frequent than it was before the introduction of these agents.

Tuberculosis of the Genital Tract

The initial lesion of urogenital tuberculosis is located in the kidneys. Infection spreads to the ureters, the bladder, the prostate gland, the seminal vesicles, the vas deferens and the epididymis, at first by way of the urine. Later, spread of the tuberculous process is by direct extension along the vas from the prostate gland to the epididymis and through the ejaculatory duct to the seminal vesicles.

In the genital tract proper, the prostate gland is the initial site of tuberculous infection. Clinical research and examination of tissues removed at opera-

tion and postmortem examinations has convinced the author that prostatic tuberculous infection is derived from infected urine from a tuberculous kidney. From the prostate gland, extension of tuberculous infection is by way of the hollow tubes or ducts, as the lumen of the vas into the epididymis.

Destruction of prostatic tissue may result in excavations and scars sufficient to produce obstruction and interference with urination. Following control of the renal tuberculous lesions, transurethral prostatic resection occasionally is necessary.

Surgical treatment for tuberculosis of the vas and of the epididymis is less frequently employed since the advent of the chemotherapeutic agents and the antibiotics. The author has never found it necessary to excise the seminal vesicles or the entire prostatic gland because of tuberculous infection, and is of the belief that these lesions should be treated conservatively, especially in the presence of active tuberculous lesions in the kidney or the lungs. Even before the antibiotics and chemotherapy were introduced, the author observed cases in which active tuberculous lesions of the vas and the epididymis were arrested by such measures as continuous moist heat and, when necessary, drainage of infected suppurating areas adherent to the skin over the vas or the epididymis by needle puncture or a small incision. In cases in which nephrectomy was necessary, if conservative management was ineffective in retarding local lesions of the vas and the epididymis, surgical removal of these structures was carried out.

Another reason for avoiding surgical treatment for tuberculous infection of the epididymis and the vas is the hazard incurred to the testicular blood supply. A single main artery, with branches to the epididymis, the vas, and the testis constitutes the blood supply to these structures. The pattern of these branches varies so much that, in spite of careful dissection, the testicular branch can inadvertently be cut and tied, resulting in atrophy of the testis. This frequent complication encourages a conservative attitude and the use of the less hazardous medical regimen. Since tuberculous epididymitis is bilateral in 60 to 70 per cent of cases, the risk of complete loss of testicular function is an accompaniment of surgical treatment for tuberculosis of the epididymis.

Only infrequently has the author found it necessary to remove the testis. Occasionally some testicular tissue must be excised, but the testes have considerable resistance to tuberculous infection.

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